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Fig. 4 is a side view of the revolving cylinder and driving wheel. T is a spring that allows the electro-magnet to bring down the pointer of I′ on the cylinder at *u*.

The great advantage of this instrument depends on there being no necessity of reading the micrometer during the observation, but the value of the scale on the cylinder can be tested by readings at other times.

Stonyhurst Observatory,
March 10th, 1873.

Search for Vulcan. By H. C. Russell, Esq.

(*From a Letter to the Honorary Secretaries.*)

I send you the enclosed note for the *Notices*, as it is probable many in reply to Mr. Hind's invitation will have been on the look out for the supposed planet.

Circumstances here were specially favourable on the 24th March, the sky being clear all day.

I used the 7¼-inch refractor, and at times an unsilvered 10¾-inch glass reflector, with both of which the very rapid changes going on in the large spot were distinctly seen during the day.

The mail closes this morning at 10 A.M., so I am obliged to send the results obtained to 9 A.M.

A careful watch was kept for the supposed planet all day of the 24th, but nothing could be seen at all like it. Regular observations were also made on the 21st, 22nd, and 23rd, with no better result.

This morning the sun rose obscured by the clouds, and was not observed until 9 A.M., when nothing except the sun-spots could be seen.

Sydney Observatory,
25th March, 1873.

A Second Catalogue of New Double Stars, discovered with a 6-inch Alvan Clark Refractor. By S. W. Burnham, Chicago, U.S.A.

Nearly all of these double stars have been found since the preparation of the former catalogue. The exceptions are where some uncertainty existed as to the real duplicity of the star, or where the distance and angle had not been sufficiently observed. The 6-inch Clark Refractor, previously referred to, has been used exclusively. From a careful examination of a General Catalogue of Double Stars (in manuscript), comprising substantially, if not entirely, every double star known, I have little doubt that the following are now noted for the first time as double stars. The numbers are continued from the first list. The position angles and distances are estimated in all cases.

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No.	Designation.	R.A. 1870. h m s	Decl. 1870. ° ′	Position est. °	Distance est. ″	Magnitudes.	Discovered.	Notes.
82	*ω* Andromedæ A and B C	1 19 53	44 44	105	138	5	Dec. 2, 1872	A very minute double companion to *ω Andromedæ.*
	B and C	..	..	..	2	12, 12		
83	Weisse ii. 666 = L. 5140	2 39 29	− 5 30	125	1	7, 10	Dec. 16, 1872	A beautiful but difficult pair in *Cetus,* 4^{m} 22^{s} p. No. 10 of my former list.
84	Weisse iii. 147	3 9 35	− 6 24	20	0·5	6, 6	Nov. 16, 1872	Visible to the naked eye. Excessively close and difficult, but the elongation seems certain.
85	Weisse iii. 1031	48 0	17 15	225	5	8½, 12	Feb. 14, 1873	In *Taurus n f* a brighter star.
86	Weisse iv. 129	4 8 3	23 11	60	2	9, 10	Feb. 16, 1873	Faint but pretty pair in *Taurus.*
87	B. A. C. 1342 = P. iv. 53	14 43	20 28	180	1·5	7, 11	Feb. 7, 1873	An extremely beautiful pair, *n f* ω^2 *Tauri.* The colours were fine and strongly contrasted. This star is No. 34 of Schjellerup's Catalogue of Red Stars. Variously rated in the Star Catalogues from 6th to 7th mag.
88	51 Eridani	31 3	− 2 44	90	25	6, 15	Dec. 8, 1871	Very minute companion.
89	Weisse v. 752	5 30 59	− 1 30	340	0·6	9, 9	Feb. 19, 1872	One of the most difficult double stars I have ever found. It follows *ε Orionis* 1^{m} 23^{s}, and is 12′ 57″ *s.* This is given in Lalande as 7½ mag. (= L. 10608.)
90	26 Aurigæ A and C	30 16	30 25	115	30	5, 12	Mar. 19, 1872	A second companion, though not difficult, missed by Struve, and not mentioned by Dawes, Dembowski, and others, in measures of A and B.
91	Weisse v. 1293	39 34	20 53	80	1·5	8, 12	Feb. 16, 1873	A beautiful and delicate pair in the same field with O Σ 118, 43^{s} *p.* and 4′ *n* (= L. 10913.)
92	Weisse v. 1309	40 22	21 3	170	5	9, 11	Feb. 16, 1873	Near the preceding pair.
93	Weisse v. 1332 A and B C D	5 41 7	21 0	125	60	9	Feb. 16, 1873	A star with curious triple companion, the two smaller stars being very minute; 31^{s} *f* O Σ 118 and 9′ *n.* A very low power will include this and the two preceding pairs and O Σ 118 in the same field.
	B and C	..	..	300	3	11. 12		
	B and D	..	..	160	2	13		

No.	Designation.	R.A. 1870.	Decl. 1870.	Position est.	Distance est.	Magnitudes.	Discovered.	Notes.
		h m s	° ′	°	″			
94	L. 11086	5 43 40	−14 31	190	2·5	6, 10	Jan. 26, 1873	A fine and easy double star about 45′ from *ζ Leporis*, *n f.* Just visible to the naked eye.
95	L. 11128	45 39	− 7 20	300	10	8, 15	Feb. 25, 1873	Near 55 *Orionis*, *n f.* The companion very small, and requires the highest powers to be satisfactorily seen.
96	75 Orionis A and B	6 9 56	9 59	160	120	6, 9	Jan. 26, 1873	A companion to the companion, the smaller star being extremely faint.
	B and C	..	..	250	2·5	14		
97	L. 12260	18 6	− 1 21	260	1	7½, 10	Feb. 19, 1873	An exquisite pair in *Orion*, but very difficult; 2^m *p*, a 6½ m. star.
98	L. 12564	26 13	− 5 15	130	1	8, 8	Feb. 19, 1873	A difficult double star; in *Monoceros*.
99	Weisse vi. 1610 A and B	53 20	12 54	300	8	8, 14	Mar. 16, 1873	The *n* star of a wide pair (60″ ±). The close companion excessively minute.
	A and C	..	..	240	12	12		
100	Weisse vi. 1620	53 39	12 37	270	2·5	8, 12	Jan. 3, 1873	A very delicate object. This star and the preceding form with a third 8 m. star an equilateral triangle. The latter is also a wide double (= H. 3288.)
101	9 Argus	7 45 44	−13 33	120	0·7	5½, 5½	Mar. 11, 1873	A very close, and from its southern declination, difficult pair. The components very nearly equal.
102	L. 16234	8 10 30	− 8 37	110	3	7, 11	Mar. 11, 1873	Delicate pair in *Monoceros*.
103	L. 17611	8 48 32	− 7 19	80	2	8, 12	Feb. 7, 1873	Very unequal; 35^s *p* 17 *Hydræ* (Σ 1295), and 9′ *n*.
104	L. 18134	9 4 49	0 49	120	2·5	7, 12	Feb. 17, 1873	Another fine and difficult double star in *Hydra*.
105	*κ* Leonis	17 4	26 44	210	2	5, 11	Feb. 25, 1873	The companion an exceedingly minute but bright point of light, making a delicate and interesting object.
06	*μ* Libræ	14 42 12	−13 36	340	1·3	5, 7	Apr. 12, 1873	A fine and very easy pair. There must be relative motion, for it could not have escaped Struve and others if as wide formerly as now. A very small aperture is now sufficient to show it.